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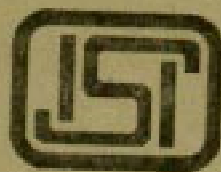
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IS: 3494 - 1978

Indian Standard
SPECIFICATION FOR
PRUNING SECATEUR
(*First Revision*)

UDC 631.342.1 : 672.714.66



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INDIAN STANDARDS INSTITUTION

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NEW DELHI 110002

Gr 3

Price Rs 5.00

January 1979

Indian Standard

SPECIFICATION FOR PRUNING SECATEUR

(*First Revision*)

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Indian Standard
SPECIFICATION FOR
PRUNING SECATEUR
(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 29 September 1978, after the draft finalized by the Horticultural Equipment Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Pruning Secateur is used by gardeners for comparatively quick and easy pruning. This tool has been found specially useful in pruning those plants which are thorny.

0.3 This standard was first published in 1966. The revision of the standard has been taken up to incorporate the following modifications:

- a) Deletion of design details given in the figures,
- b) Inclusion of certain additional materials, and
- c) Stipulation of only those dimensions which are functionally important.

0.4 The figures in the standard are given only as typical illustration and should not be considered as suggestive of any standard design.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes material, sizes and other requirements for pruning secateur.

*Rules for rounding off numerical values (*revised*).

2. TYPES

2.1 For the purpose of this standard, the secateurs shall be of following two types:

a) Hooked type (see Fig. 1), and

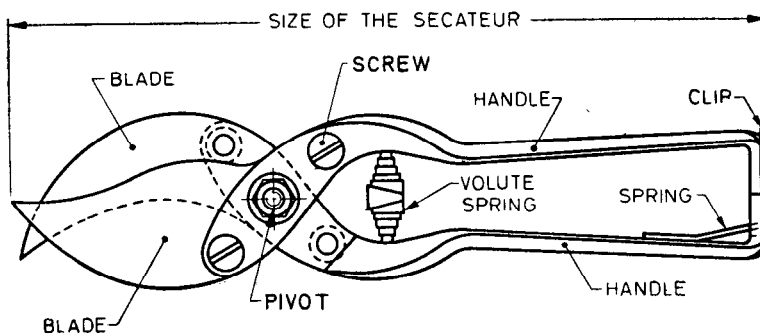


FIG. 1 PRUNING SECATEUR, HOOKED TYPE

b) Anvil type (see Fig. 2 and 3).

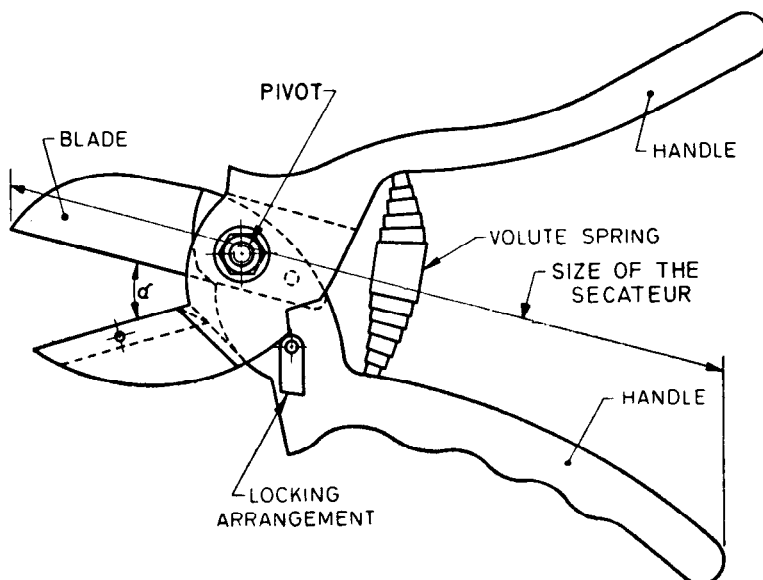


FIG. 2 PRUNING SECATEUR, ANVIL TYPE WITH VOLUTE SPRING

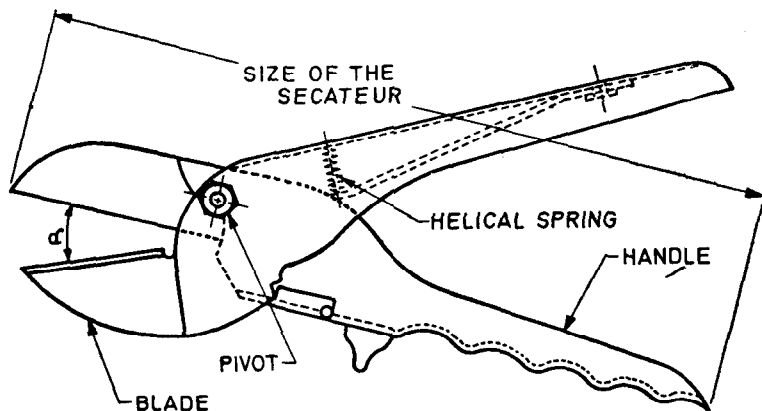


FIG. 3 PRUNING SECATEUR, ANVIL TYPE WITH HELICAL SPRING

3. SIZES

3.1 The size of the secateurs shall be 150, 175, 200 or 225 mm. The tolerance for all the sizes shall be ± 5 mm.

3.1.1 The size shall be measured as straight distance between the tip of the blade and the distant end of handle in the closed position.

4. MATERIALS

4.1 The material for various components, other than blade, shall be selected from col 3 of Table 1. The material should conform to the Indian Standards given in col 4 of Table 1.

4.2 The blade of the secateur shall be manufactured from high carbon steel, alloy steel or tool steel.

4.2.1 The chemical composition of the high carbon steel shall be as follow:

- a) Carbon 0.7 to 0.9 percent,
- b) Silicon 0.1 to 0.4 percent,
- c) Manganese 0.5 to 1.0 percent,
- d) Sulphur 0.05 percent, *Max*
- e) Phosphorus 0.05 percent, *Max*

TABLE 1 MATERIAL OF CONSTRUCTION OF VARIOUS COMPONENTS OF SECATEUR

(Clause 4.1)

SL No.	COMPONENT	MATERIAL	APPLICABLE INDIAN STANDARD
(1)	(2)	(3)	(4)
i)	Handle	Mild steel	IS : 226-1975*
		Aluminium alloy	IS : 617-1975†
		Nylon	—
		Plastics	—
		Bakelite	—
ii)	Finger guard	do	do
iii)	Springs	Spring steel	{ IS : 4454 (Part I)-1975‡ IS : 2507-1975§
iv)	Locking device	Mild steel	IS : 226-1975*
		Spring steel	{ IS : 4454 (Part I)-1975‡ IS : 2507-1975§
v)	Anvil	Gun metal	IS : 306-1968
		Aluminium alloy	IS : 617-1975†

*Specification for structural steel (standard quality) (*fifth revision*).

†Specification for aluminium and aluminium alloy ingots and castings for general engineering purposes (*revised*).

‡Specification for patented and cold drawn steel wire unalloyed for cold formed springs (*first revision*).

§Specification for cold rolled steel strip for springs.

||Specification for tin bronze ingots and castings (*second revision*).

4.2.1.1 Some of the typical steels that may be used are: C75, C80 and C85 (*see* IS : 1570-1961*).

4.2.2 Alloy steel preferably conforming to Grade 16NiCr₂Mo20, 37Si2Mn90 or 37Mn2 of IS : 4367-1967† should be used.

4.2.3 Tool steel preferably conforming to Grade T75 or T85 of IS : 4367-1967† should be used.

5. HARDNESS

5.1 The cutting edge of the blades shall be heat treated to have a hardness of 425 to 450 HB (*see* IS : 1500-1968‡) or equivalent Rockwell or Vickers hardness numbers (*see* IS : 4258-1967§). The hardness shall be tested within a distance of 10 mm from cutting edge.

*Schedules for wrought steels for general engineering purposes.

†Specification for alloy and tool steel forgings for general industrial use.

‡Method for brinell hardness test for steel (*first revision*).

§Hardness conversion tables for metals.

6. DIMENSIONS

6.1 The minimum thickness of the blades shall be 3.0 mm.

6.2 In case of anvil type secateur, the angle of the opening of the blades at the vertex (*see* α in Fig. 2 and 3) shall be not more than 45°.

7. OTHER REQUIREMENTS

7.1 The blade shall be forged to the shape and hardened. The surface of the cutting edge shall have a smooth finish with a sharp edge.

7.2 The springs, if used, shall be such and fixed in such a way that the blade(s) return to their normal position soon after every operation.

7.3 If a spring is used, a suitable locking arrangement shall be provided to lock the secateur when not in use. In locked position, the blade or blades and anvil should be fully closed.

7.4 In case of anvil type secateur, the surface of the anvil against which the blade strikes shall have a groove extended to its striking length.

7.5 The pivot for both the handles shall be fastened in such a manner that there shall not be any excessive looseness, sideways movement, or binding when the secateur is opened or closed. The pivot should be suitably locked so that it shall not become loose when the secateur is in use.

8. TESTS

8.1 Cutting Test — The secateur shall clearly cut 10 pieces of green wood, approximately 10 mm in diameter, without injury to bark. After having cut 10 such pieces of green wood, the hooked-type secateur shall cut newsprint paper (0.075 to 0.10 mm thick) clean, without tearing the paper. For anvil type secateur, the news paper prints shall be folded to make the thickness of 0.8 to 1.0 mm for cutting.

8.2 Load Test — The assembled secateur shall suffer no permanent damage to any component as a result of applying a torque of 45 N.m at the point shown in Fig. 4.

9. WORKMANSHIP AND FINISH

9.1 The secateur shall be finished smooth and shall be free from cracks, burrs and sharp edges other than cutting edge.

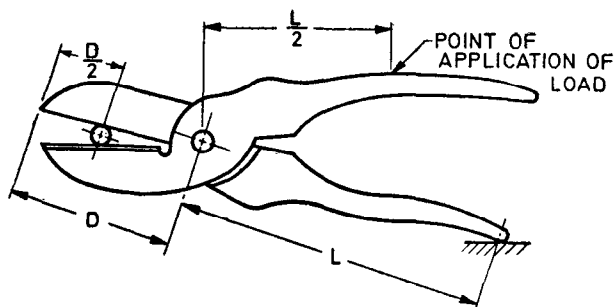


FIG. 4 LOCATION FOR LOAD TEST

9.2 Steel components of the secateur shall be plated with nickel, zinc or cadmium. Handle and finger guard if made of steel or aluminium alloy may be coated with plastics or nylon also.

10. MARKING AND PACKING

10.1 Marking — Each secateur shall be marked with the following particulars:

- a) Manufacturer's name or recognized trade-mark,
- b) Type and size, and
- c) Batch or code number.

10.1.1 Each secateur may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

10.2 Packing — The secateurs shall be packed, as agreed to between the purchaser and the supplier, for safe handling in transit.

11. SAMPLING FOR LOT ACCEPTANCE

11.1 Unless otherwise agreed to between the purchaser and the supplier, sampling of the secateur for lot acceptance shall be done in accordance with 3 of IS : 7201-1974*.

11.1.1 The classification of different requirements of this standard for the purpose of testing for lot acceptance is given below for guidance:

- a) *Dimensional and visual requirements* — See 3, 6, 7, 9 and 10.1.
- b) *Requirements other than dimensional and visual* — See 5 and 8.

*Method of sampling of agricultural machinery and tractors.

INDIAN STANDARDS
ON
HORTICULTURAL EQUIPMENT

IS:

- 619-1961 Pruning knives, hooked and curved (*revised*)
- 621-1978 Forks for plantations and estates (*first revision*)
- 2238-1962 Transplanting spade and *SEPRANG*
- 2559-1978 Garden rake (*first revision*)
- 2563-1978 Hedge shears, straight-edge type (*first revision*)
- 3092-1965 Rubber draining and tapping knife
- 3093-1965 Dah, jungle cutting
- 3094-1965 Bill-hook
- 3108-1965 Pruning saw, straight and curved
- 3122-1965 Budding and grafting knife, combined
- 3494-1978 Pruning secateur (*first revision*)
- 7825 Cylinder type hand lawn mower:
 - 7825 (Part I)-1975 Wheel type
 - 7825 (Part II)-1975 Roller type
- 8179-1976 Garden dutch hoe
- 8942-1978 Orchard ladder

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	Unit	Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	Unit	Symbol
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	Unit	Symbol	Conversion
Force	newton	N	1 N = 0.101 972 kgf
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

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